

# Teacher's Guide

# November

## Earthquakes



## Drop, Cover, and Hold On!

Although earthquakes are uncommon in New York City, tremors occasionally occur. It's important to know what to do if an earthquake or a tremor occurs at school or at home. In August 2011, tremors were felt in New York City from an earthquake that originated in Virginia.

### During an earthquake:

- Drop to the floor.
- Take cover under a solid piece of furniture or next to an interior wall.
- Cover your head and neck with your arms.
- Hold on to a sturdy piece of furniture. Stay where you are until the shaking stops.



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### After an earthquake:

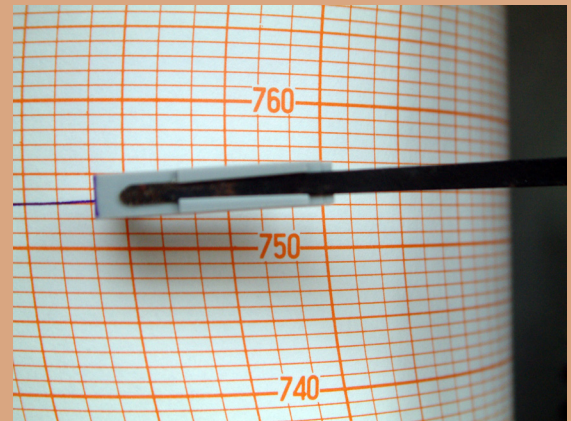
- Check the people around you for injuries. Do not move seriously injured people.
- If you have a fire extinguisher and have been trained to use it, put out any small fires that occurred.
- Be prepared for aftershocks or subsequent tremors.

Let's get ready and stay safe if a tremor or an earthquake strikes!

Did you know? New York State's largest earthquake hit on September 5, 1944, measuring a 5.8 on the Richter scale.

## Plan ahead

- Identify safe places in your classroom, such as under desks or solid tables and away from windows, hanging objects, or tall furniture that could fall.
- Examine your room for unstable items that could fall on someone during a tremor. For example, anchor bookcases to the wall and store large, heavy, or breakable objects on low shelves.
- Make sure students know that during a tremor it's best to stay where you are instead of trying to evacuate.
- If you are outdoors, move to a clear area and avoid power lines, buildings, and trees.



### Fun fact

There are over 900,000 earthquakes around the world each year. Most can't be felt, but they can be recorded by a seismograph.



Department of Education  
Office of Emergency Management

# Reinforce the earthquake–safety message and build skills across the curriculum with these simple activities:



## Language Arts

Allow time for students to research what causes earthquakes to occur and what is being done to detect earthquakes before they strike. Then, have them write a one- page informative paper or news story sharing what they learned.



## Math

Often very large numbers are written in exponential form—including the Richter scale, which is used to measure the strength of earthquakes. A magnitude 1 earthquake is  $1 \times 10^1$ , a magnitude 2 earthquake is ten times stronger or  $1 \times 10^2$ , etc. The intensity of an earthquake can range from 1 to 10,000,000.

An earthquake measuring 2 on the Richter scale can barely be felt, but one measuring 7 can cause serious damage. See if your students can use exponential form to answer the following questions. Then ask them to come up with their own questions:

1. How much more intense is an earthquake with magnitude 6 than one with magnitude 3?
2. How much more intense is an earthquake with magnitude 6 than one with magnitude 5?



## Social Studies

The largest earthquake in New York City history occurred in 1944. It was felt from Canada to Maryland and from Maine to Indiana and caused about \$2 million in property damage. To research this earthquake and others in our area, check out the U.S. Geological Survey website at [www.usgs.gov](http://www.usgs.gov) to view a real-time earthquake-monitoring system.



## Science

What is an aftershock? What is a tsunami? Have students research these natural events and then prepare a presentation to explain the cause-effect relationship between an earthquake and a tsunami.

### To Learn More:

Office of Emergency Management earthquake information page,  
<http://www.nyc.gov/html/oem/html/hazards/earthquakes.shtml>

NYC Office of Emergency Management, [www.nyc.gov/oem](http://www.nyc.gov/oem)

OEM on Facebook, [www.facebook.com/NYCemergencymanagement](http://www.facebook.com/NYCemergencymanagement)

OEM on Twitter, [@nycoem](https://twitter.com/nycoem)

Notify NYC: Register for emergency notifications by visiting [nyc.gov/notifynyc](http://nyc.gov/notifynyc), calling 311, or following [@NotifyNYC](https://twitter.com/NotifyNYC) on Twitter

U.S. Geological Survey, [www.usgs.gov](http://www.usgs.gov)

<http://www.shakeout.org/schools/resources/>